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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,897	03/31/2004	James Naden	920476-95824	7609
23644	7590	02/21/2006	EXAMINER	
BARNES & THORNBURG, LLP			WENDELL, ANDREW	
P.O. BOX 2786			ART UNIT	
CHICAGO, IL 60690-2786			PAPER NUMBER	

2643

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/814,897	Applicant(s) NADEN ET AL.	
	Examiner Andrew Wendell	Art Unit 2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 6, 10-12, 15-25, 27, 31-33, and 36-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Fette et al. (US Pat# 5,612,948).

Regarding claim 1, Fette et al. high bandwidth communication network teaches a control entity 24 (Fig. 2 and Fig. 3) for a wireless communications system which comprises a plurality of base stations 12 (Fig. 1), each base station defining a plurality of beams (Col. 3 lines 62-64) which each have an amount of resources for supporting communication links with terminals 16 or 16' (Fig. 1) located in the beams, and a

Art Unit: 2643

relaying equipment 16 (Fig. 1), wherein the control entity is arranged to determine if a direct communication link can be supported between a new terminal and a base station using a first beam (Col. 3 lines 41-57 and Col. 4 lines 22-34) and, if the direct communication link cannot be supported, to invoke use of the relaying equipment to provide a first communication link between a base station and the relaying equipment using the resources of a second beam (Col. 3 lines 41-57 and Col. 4 lines 22-34) and a second communication link between the relaying equipment and the terminal whereby to provide a multi-hop path between the base station and the terminal (Col. 3 lines 41-57 and Col. 4 lines 22-65).

Regarding claim 2, Fette et al. teaches wherein the first beam and the second beam are defined by the same base station (Fig. 1, Col. 3 lines 41-57, and Col. 4 lines 22-65).

Regarding claim 3, Fette et al. teaches wherein the first beam and the second beam are separated by at least one intermediate beam of the base station (Col. 3 lines 21-57). Does not limit the repeater units that can be used and could be separated by at least one beam or more.

Regarding claim 6, Fette et al. teaches a control entity arranged to determine if the first beam has sufficient resources to support a direct communication link with the new terminal (Col. 4 lines 22-65).

Regarding claim 10, Fette et al. teaches wherein there are a plurality of relaying equipments positioned within the beams and the control entity is further arranged to

select a relaying equipment, from a plurality of candidate relaying equipments, to provide the multi-hop path (Col. 4 lines 35-48).

Regarding claim 11, Fette et al. teaches wherein the control entity is arranged to select a relaying equipment on the basis of the quality of the first communication link that the relaying equipment can provide (Col. 4 lines 35-65).

Regarding claim 12, Fette et al. teaches wherein the control entity is arranged to select a relaying equipment on the basis of the quality of the second communication link that the relaying equipment can provide (Col. 4 lines 35-65).

Regarding claim 15, Fette et al. teaches wherein the second communication link uses the resources of the first beam (Col. 3 lines 41-57 and Col. 4 lines 22-65).

Regarding claim 16, Fette et al. teaches wherein the second communication link uses the resources of the second (Col. 3 lines 41-57 and Col. 4 lines 22-65).

Regarding claim 17, Fette et al. teaches wherein the second communication link uses resources which are separate from those allocated to each beam for direct communication with terminals (Col. 3 lines 41-57 and Col. 4 lines 22-65).

Regarding claim 18, Fette et al. teaches a control entity which is part of the base station (Col. 2 line 52-53).

Regarding claim 19, Fette et al. teaches a control entity which is part of the terminals 16 or 16' (Fig. 1) or relaying equipment 16 (Fig. 1).

Regarding claim 20, Fette et al. teaches a base station 12 (Fig. 1) for a wireless communications system 10 (Fig. 1) including a control entity 24 (Fig. 2 and Fig. 3).

Regarding claim 21, Fette et al. teaches a base station 12 (Fig. 1) for a wireless communications system 10 (Fig. 1) including a control entity 24 (Fig. 2 and Fig. 3).

Regarding claim 22, Fette et al. teaches a base station 12 (Fig. 1) for a wireless communications system 10 (Fig. 1) including a control entity 24 (Fig. 2 and Fig. 3).

Regarding claim 23, method claim 23 is rejected for the same reason as apparatus claim 1 since the recited elements would perform the claimed steps.

Regarding claim 24, method claim 24 is rejected for the same reason as apparatus claim 2 since the recited elements would perform the claimed steps.

Regarding claim 25, method claim 25 is rejected for the same reason as apparatus claim 3 since the recited elements would perform the claimed steps.

Regarding claim 27, method claim 27 is rejected for the same reason as apparatus claim 6 since the recited elements would perform the claimed steps.

Regarding claim 31, method claim 31 is rejected for the same reason as apparatus claim 10 since the recited elements would perform the claimed steps.

Regarding claim 32, method claim 32 is rejected for the same reason as apparatus claim 11 since the recited elements would perform the claimed steps.

Regarding claim 33, method claim 33 is rejected for the same reason as apparatus claim 12 since the recited elements would perform the claimed steps.

Regarding claim 36, method claim 36 is rejected for the same reason as apparatus claim 15 since the recited elements would perform the claimed steps.

Regarding claim 37, method claim 37 is rejected for the same reason as apparatus claim 16 since the recited elements would perform the claimed steps.

Art Unit: 2643

Regarding claim 38, method claim 38 is rejected for the same reason as apparatus claim 17 since the recited elements would perform the claimed steps.

Regarding claim 39, computer program claim 39 is rejected for the same reason as apparatus claim 1 since the recited elements would perform the claimed steps.

Regarding claim 40, apparatus claim 40 is rejected for the same reason as apparatus claim 1 since the recited elements would perform the claimed steps.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fette et al. (US Pat# 5,612,948) in view of Lamoureux et al. (US Pat# 6,330,458).

Regarding claim 4, Fette et al. high bandwidth communication network teaches the limitations in claim 1. Fette et al. fails to teach a beam narrower than the width of the sectors.

Lamoureux et al. intelligent antenna sub-sector switching for time slotted systems teaches wherein the base station defines a plurality of sectors and the beams have a width which is narrower than the width of the sectors (Col. 2 lines 30-39).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate a beam narrower than the width of the sectors as taught by Lamoureux et al. into Fette et al.

Art Unit: 2643

high bandwidth communication network in order to improve signals errors and discontinuity in the signals (Col. 2 lines 49-64).

6. Claims 5 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fette et al. (US Pat# 5,612,948) in view of Chen (US Pat Appl# 2003/0195017).

Regarding claim 5, Fette et al. high bandwidth communication network teaches the limitations in claim 1. In Fette et al. system the beam should be adapted to a repeater in order for communication to occur, but that is not stated. Fette et al. fails to teach adapting the beam shape.

Chen et al. wireless communication system with base station beam sweeping teaches a control entity arranged to adapt the shape of the second beam to serve a communication point (Abstract, Sections 0017-0021).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate adapting the beam shape as taught by Chen et al. into Fette et al. high bandwidth communication network in order to decrease mutual interference between elements in the system (Section 0016).

Regarding claim 26, method claim 26 is rejected for the same reason as apparatus claim 5 since the recited elements would perform the claimed steps.

7. Claims 7-8, 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fette et al. (US Pat# 5,612,948) in view of Brody et al. (US Pat# 4,670,899).

Regarding claim 7, Fette et al. high bandwidth communication network teaches the limitations in claims 1 and 6. Fette et al. fails to teach determining the quality of communication in other terminals.

Brody et al. load balancing for cellular radiotelephone system teaches determining if the first beam has sufficient resources to support a direct communication link without reducing quality of communication for existing terminals served by the first beam below a predetermined limit (Col. 7 lines 4-49).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate determining the quality of communication in other terminals as taught by Brody et al. into Fette et al. high bandwidth communication network in order to improve system performance and reduce block calls (Col. 6 line 59-Col. 7 line 3).

Regarding claim 8, the combination including Brody et al. teaches determining an amount of resources required to support the direct communication link between the new terminal and the base station, to determine a reduced amount of resources available to existing terminals served by the first beam if the base station were to accept the new terminal, and a quality of communication resulting from the reduced amount of resources (Col. 7 lines 4-49).

Regarding claim 28, method claim 28 is rejected for the same reason as apparatus claim 7 since the recited elements would perform the claimed steps.

Regarding claim 29, method claim 29 is rejected for the same reason as apparatus claim 8 since the recited elements would perform the claimed steps.

Art Unit: 2643

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fette et al. (US Pat# 5,612,948) in view of Brody et al. (US Pat# 4,670,899) as applied to claims 1, 6, and 7 above, and further in view of Cheng et al. (US Pat Appl# 2005/0143084).

Regarding claim 9, Fette et al. high bandwidth communication network in view of Brody et al. load balancing for cellular radiotelephone system teaches the limitations in claims 1, 6, and 7. Fette et al. and Brody et al. fail to teach an equal throughput scheduling.

Cheng et al. network controlled channel information reporting teaches wherein the base station uses equal throughput scheduling (Section 0014).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate an equal throughput scheduling as taught by Cheng et al. into determining the quality of communication in other terminals as taught by Fette et al. in view of Brody et al. high bandwidth communication network in order to improve system performance (Section 0002).

9. Claims 13 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fette et al. (US Pat# 5,612,948) in view of Wiedeman et al. (US Pat# 6,775,251).

Regarding claim 13, Fette et al. high bandwidth communication network teaches the limitations in claims 1 and 10. Fette et al. fails to teach selecting a relay base on distance.

Wiedeman et al. satellite communication system providing multi-gateway diversity and improved satellite loading teaches wherein the control entity is arranged to

Art Unit: 2643

select a relaying equipment on the basis of distance between the relaying equipment (satellite) and the new terminal (Col. 6 lines 44-53).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate selecting a relay base on distance as taught by Wiedeman et al. into Fette et al. high bandwidth communication network in order to provide additional criteria to base an assignment of a new communication satellite(s) (Col. 3 lines 8-18).

Regarding claim 34, method claim 34 is rejected for the same reason as apparatus claim 13 since the recited elements would perform the claimed steps.

10. Claims 14 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fette et al. (US Pat# 5,612,948) in view of Lovinggood et al. (US Pat# 6,934,511).

Regarding claim 14, Fette et al. high bandwidth communication network teaches the limitations in claims 1 and 10. Fette et al. fails to teach selecting a relay based on a beam.

Lovinggood et al. integrated repeater teaches wherein the control entity selects a relaying equipment in order to compensate for the shape of the beams (Col. 5 lines 52-65).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate selecting a relay based on a beam as taught by Lovinggood et al. into Fette et al. high bandwidth communication network in order to reduce costs (Col. 2 lines 7-16).

Regarding claim 35, method claim 35 is rejected for the same reason as apparatus claim 14 since the recited elements would perform the claimed steps.

11. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fette et al. (US Pat# 5,612,948) in view of Cheng et al. (US Pat Appl# 2005/0143084).

Regarding claim 30, Fette et al. high bandwidth communication network and method teaches the limitations in claims 23 and 27. Fette et al. fail to teach an equal throughput scheduling.

Cheng et al. network controlled channel information reporting teaches wherein the base station uses equal throughput scheduling (Section 0014).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate an equal throughput scheduling as taught by Cheng et al. into Fette et al. high bandwidth communication network and method in order to improve system performance (Section 0002).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Wendell whose telephone number is 571-272-0557. The examiner can normally be reached on 7:30-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2643

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Patent Examiner

Date: 2/8/2006



DUC NGUYEN
PRIMARY EXAMINER

ASW